

## **Chesapeake Bay Industrial Wastewater Compliance Plan**

The strategy outlined in this guidance document is intended to supplement existing requirements. Nothing in the plan shall affect regulatory requirements. The information herein is not an adjudication or a regulation. There is no intent on the part of the Department of Environmental Protection (DEP) to give the plan described in this document that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this plan if circumstances warrant.

### **Background**

In 2003, EPA established state-wide cap loads for Total Nitrogen and Total Phosphorus for Pennsylvania that are needed to ensure compliance with new water quality standards enacted to restore the water quality of the Chesapeake Bay. DEP released Pennsylvania's Chesapeake Bay Tributary Strategy (CBTS) in January of 2005 to guide Pennsylvania's efforts to meet those cap loads, and made revisions to the Strategy in 2006-2007 following a stakeholder process. The CBTS also addressed Pennsylvania's commitment for nutrient and sediment reductions in the Chesapeake Bay Watershed, under the multi-state Chesapeake 2000 Agreement.

A work group was formed which met in 2007/2008 to advise the DEP in addressing the need for nutrient reductions by significant industrial waste dischargers. Significant industrial wastewater dischargers are industrial facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis. Thirty facilities were projected to be in this category.

DEP held 3 meetings with the 30 significant industrial dischargers from October, 2007 through February, 2008. Participants raised concerns and suggested items that DEP consider when developing cap loads for these facilities. To assist with addressing these concerns, DEP requested that the significant industrial facilities submit preliminary nutrient reduction evaluations, including data on nutrient loadings in their discharge and their ability to remove these nutrients. This information, and other available data as well as case-by-case evaluations of each facility, were used to establish cap loads for these facilities.

### **Opting Out**

Several of the facilities that were on the original list of 30 significant industrial dischargers were found not to exceed both 75 lbs/day of TN and 25 lbs/day of TP on an annual average basis. These facilities were given the option to receive a cap load equal to their existing load for TN and TP, or to opt out of a cap load at this time and just monitor for nutrients. It must be noted that these facilities were cautioned that if they opt out, there is no guarantee that there will be a reserve cap load available in the future, should they desire to increase production to the point of becoming a significant discharger.

## **Nutrient Monitoring**

When reissuing permits for non-significant industrial wastewater discharges in the Chesapeake Bay Watershed, DEP will evaluate whether monitoring requirements are needed in the permit. See Appendix B for recommended monitoring at IW facilities in the Chesapeake Bay.

## **Establishing Cap Loads**

Pursuant to the NPDES regulations at 25 Pa. Code Chapter 92, DEP has developed an allocation to be used to address the nutrient loads originating in industrial wastewater sources as part of its efforts to ensure compliance with the water quality standards related to the Chesapeake Bay. This allocation is expressed as annual “cap loads” of Total Nitrogen and Total Phosphorus that DEP plans to incorporate into NPDES permits for those sources.

Based on data available for loadings in 2002, and adding a 10% reserve for economic growth, 1.9 million lbs/year of TN and 66,348 lbs/year of TP were allocated to the significant industrial wastewater point sources as a group.

The determination of cap loads for each facility was generally divided into five categories. First would be those facilities that had reductions before the 2002 loads were calculated; second would be those facilities that submitted a Nutrient Reduction Evaluation (NRE) and reduced their nutrient loads between 2002 and 2009; third would be those facilities that submitted an NRE and are planning to reduce nutrient loads through upgrades to operation or construction of their treatment plants; fourth would be those facilities that are already at low levels of nutrient discharge loads; and fifth would be those facilities that did not submit an NRE or submitted an NRE but did not plan to reduce nutrient loads. The loads for these categories are shown below with first through fifth shown as 1 through 5 respectively.

1. The cap loads for the first category are the 2002 load or current load whichever is greater +10%.
2. The cap loads for the second category are the current load +10%
3. The cap loads for the third category are the loads they plan to reduce to in their NRE. The permit will be written such that those facilities will have a compliance schedule to give them time to complete their operation or construction upgrades before DEP would expect them to meet the more stringent loadings.
4. The cap loads for the fourth category would be their current loads.
5. The cap loads for the fifth category would be their current loads reduced by 33%.

After applying the loads as outlined above, the phosphorous load still exceeded the allowable total load for significant Industrial Wastewater Facilities of 66,348 lbs/year of TP. Therefore the phosphorous loadings were reduced by an equal percentage basis for all facilities above 0.5 mg/l in their discharge with no one expected to achieve reductions below 0.5 mg/l unless already doing so.

Note that in some cases EPA may have established nutrient ELGs for several types of industries. If a significant industrial discharger in the Chesapeake Bay Watershed is required

to meet an ELG, then the load limit for nutrients will be based on the lesser of the ELG or the load from the previous paragraph.

Several of the Significant Industrial Dischargers noted that they withdrew water from the same water body to which they discharged. These dischargers requested that DEP consider the background nutrient level of the water that was withdrawn and get credit for the background nutrient load, i.e. their cap loads be established using a net load approach. DEP considered this request and will allow credit for background loads if the discharger can demonstrate what the annual average daily background nutrient level is, and document that its water is withdrawn from the same stream for the industrial process to which the treated water is discharged. No credit will be given for water withdrawn from wells, however.

Appendix A shows the proposed cap loads for the significant industrial facilities in the Chesapeake Bay Watershed, based on the allocation methodology described above. Applying these cap loads will result in a loading of 1,428,977 lbs/yr for TN and a loading of 62,807 lbs/yr for TP to the Chesapeake Bay. These loads will provide a reserve of 519,142 lbs/yr for TN and reserve of 3,541 lbs/yr for TP. These cap loads are part of DEP's overall compliance plan to address the downstream water quality standards in Maryland and Virginia that Pennsylvania needs to meet.

### **Allocation of the Reserve**

DEP included a reserve within its allocation in consideration of future economic growth in the watershed, and plans to apply several criteria to its use of this reserve. First, new and expanding industrial dischargers in the Pennsylvania portion of the Chesapeake Bay Watershed will need to provide a report on how they will address any associated increase in nutrient loadings.. The report will consist of a review of non-discharge alternatives followed by a discussion of enhanced treatment. Second, if DEP determines, based on a review of this report, that part of the reserve for either TN or TP should be allocated, a maximum of 5% of the initial amount of the reserve can be allocated to any single new or expanding discharge. Any nutrient load the discharger needs beyond that will need to be addressed through offsets or the purchase of credits in DEP's nutrient trading program.

Publicly Owned Treatment Works (POTWs) that treat new sources of industrial waste may be able to obtain offsets from the reserve allocation for treating that wastewater. A new source in this context is a source of wastewater from an industrial facility that did not discharge to any POTW prior to September 1, 2009. The offset will be based on the following formulas. Note that the POTW must have an industrial waste pretreatment program, approved by EPA in accordance with 40 CFR Part 403, in place to obtain such an offset. The offset will in no case be greater than 5% of the initial reserve for either TN or TP.

The POTW will be assigned an offset to be added to their nutrient cap loads based on the following formula:

Offsets for TN = (IW nutrient concentration after pretreatment (mg/l) – 6 mg/l) x 8.34 x IW flow in MGD x 365 days.

Offsets for TP = (IW nutrient concentration after pretreatment (mg/l) – 0.8 mg/l) x 8.34 x IW flow in MGD x 365 days.

When the reserve has been exhausted, new industrial dischargers will need to obtain offsets and/or purchase credits equal to 100% of their proposed nutrient loads. From that point forward, expanding discharges will be limited to their existing cap load.

DEP reserves the option to reallocate loads in the future, and to revise this approach as appropriate.

### **Procedure to Implement Cap Loads**

DEP, through its regional offices will send out notification letters under Section 92.8a of DEP's regulations requesting that the significant industrial users receiving proposed nutrient cap loads provide the report or plan and schedule for complying with those cap loads that is required under that regulation. DEP will review the reports and/or plans and schedules to establish compliance schedules through the permitting process, if necessary, in the same manner that it did for the Phase 1 sewage dischargers.

Appendix A

January 2010

NPDES	FACILITY NAME	COUNTY	Design Flow (mgd)	Monthly Average flow (mgd)	2002 TN load (lbs/year)	2002 TP load (lbs/year)	Current TN load (lbs/year)	Current TP load (lbs/year)	Actual TN Load to the Bay (lbs/year)	Actual TP Load to the Bay (lbs/year)	Cap load for TN (lbs/year)	Cap load for TP (lbs/year)
PA0007498	Wise Food INC <sup>10</sup>	Columbia	0.590	0.279			29,787	1,401	19,957	898	19,957	898
PA0007552 <sup>1</sup>	Empire Kosher Poultry Inc <sup>9</sup>	Juniata	2.200	0.993	29,849	191	21,928	740	21,928	740	21,928	740
PA0007919	Cascade Tissue Group-Penn Inc <sup>8</sup>	Lackawanna	1.860	1.068	34,921	5,192	36,881	1,941	40,569	1,941	40,569	1,941
PA0008231	Gold Mill Inc <sup>10</sup>	Schuylkill	2.000	0.393	13,541	555	8,542	296	5,723	198	5,723	198
PA0008265	Appleton Paper Inc -Spring M <sup>8</sup>	Blair	4.840	4.051	55,959	10,608	56,060	15,103	61,666	7,367	61,666	7,367
PA0008419	Cherokee Pharmaceuticals <sup>8</sup> (Merck & Co Inc)	Northumberland	11.900	4.834	25,907	1,160	40,452	10,680	44,497	11,748	44,497	11,748
PA0008591	National Gypsum <sup>10</sup>	Union	0.310	0.225	2,936	140	3,303	158	2,213	106	2,213	106
PA0008443	PPL Montour, LLC <sup>10</sup>	Montour	7.870	6.941	38,641	2,604	108,581	1,791	72,749	1,200	72,749	1,200
PA0008869	PH Glatfelter Co <sup>8</sup>	York	28.800	13.838	379,845	5,447	106,898	6,201	117,588	6,821	117,588	6,821
PA0008885	Proctor and Gamble Products Co <sup>6</sup>	wyoming	7.720	6.016	91,236	4,946	88,599	2,146	100,360	5,441	100,360	5,441
PA0009024	Osram Sylvania Products Inc <sup>6</sup>	Bradford	1.100	0.867	545,923	1,434	492,991	2,757	600,515	1,577	600,515	1,577
PA0009229	Norfolk Southern Railway Company <sup>10</sup>	Cumberland	0.500	0.207	1,847	106	3,789	139	2,539	93	2,539	93
PA0009270	Delmonte Corporation <sup>7</sup>	Columbia	0.671	0.372	66,982	18,071	62,237	16,316	30,639	1,449	30,639	1,449
PA0009326	Cadbury Schweppes - Motts Inc <sup>9</sup>	Adams	1.040	0.435			18,645	729	18,645	729	18,645	729
PA0009857	U.S. F& WS - Lamar Fish Hatchery	Clinton	6.048	9.121	53,602	268	60,138	1,919	9,879	791	60,138	1,919
PA0009911 <sup>2</sup>	Papetti's Acqusion Inc <sup>10</sup> (Quaker Stat Farms)	Schuylkill	0.295	0.134			12,095	2,238	8,104	532	8,104	532
PA0010553	PA F & B Commission - BS	Center	9.216	7.720	92,280	1,645	110,347	2,285	6,154	2,285	110,347	2,285
PA0010561	PA F & B Commission - PL	Center	5.508	4.800	74,159	742	55,049	1,591	12,468	1,591	55,049	1,591
PA0024228	Pennfiels Farms (BC Natural Chicken) <sup>10</sup>	Lebanon	0.600	0.504			28,331	1,143	18,982	766	18,982	766
PA0035092	Tyson Foods <sup>7</sup>	Lancaster	1.500	0.819	35,662	184	79,854	559	27,397	559	27,397	559
PA0035157	Farmer's Pride Inc <sup>7</sup>	Lebanon	0.900	0.552			91,737	3,414	16,438	1,370	16,438	1,370
PA0037141	PA F & B Commission - Huntsdale	Cumberland	13.800	10.020			53,512	2,804	2,055	2,055	53,512	2,804
PA0038598 <sup>3</sup>	Susquehanna Aquaculture Inc <sup>10</sup>	York	6.620	6.620			80,608	5,268	54,007	3,530	54,007	3,530
PA0040835	PA F & B Commission - Lower/Bellefonte	Center	3.070	6.000	105,515	1,358	78,988	2,636	299	2,636	78,988	2,636
PA0044032	PA F & B Commission - Upper	Centre	0.576	0.406	3,039	201	7,000	50	0	50	7,000	50
PA0044741 <sup>2,4</sup>	Hanover Foods Corp <sup>10</sup>	York	0.643	0.711			39,381	2,169	26,385	979	26,385	979
PA0046680	Republic Services of PA LLC <sup>7</sup>	York	0.500	0.155			54,404	175	40,803	131	40,803	131
PA0110540	Furman Foods <sup>6</sup>	Northumberland	0.240	0.348			41,318	17,520	45,450	1,624	45,450	1,624
PA0111759 <sup>5</sup>	Cargill Meat Solution <sup>7</sup>	Bradford	0.800	0.525			383,545	26,476	14,612	1,218	14,612	1,218
PA0112127	PA F & B Commission - Tylersville	Clinton	13.000	6.590	119,173	5,464	63,339	2,382	6,356	2,382	63,339	2,382
			134.717		1,771,017	60,316	2,318,339	133,027	1,428,977	62,807	1,820,139	64,683
Adding 10% to the estimated discharge load					1,948,119	66,348	2,550,173	146,330				

1 Load is based on 2005 data base of Chesapeake Bay Foundation.

2 Data DEP submitted to the Chesapeake Bay Program

3 No data available . Used data from similar facility

4 Annual average flow data from load data DEP submitted to Chesapeake Bay Program

5 Phase 1 approach is to achieve ELG limit for TN (Actual average flow and 134 mg/L). Will achieve further reduction after implementing NRE

6 Achieved nutrient reduction before 2002 (Cap Load =2002 or current load whichever is higher + 10%)

7 NRE with clear reduction end point (cap load = targetted load with Part C condition to implement NRE)

8 NRE with no reduction end point but did reduction after 2002 (cap load = current load+10% with Part C condition to implement NRE)

9 NRE with no reduction end point and no reduction after 2002. These facilities are already at less than 6 mg/L TN and 0.8 mg/L TP and/or less than 75 lbs/day TN and 25 lbs/day TP.

10 33% reduction for all facilities that have not submitted an NRE or don't plan any reduction in nutrients and are above 6 mg/L TN and 0.8 mg/L TP and /or 75 lbs/day TN and 25 lbs/day TP.

**Chesapeake Bay IW Monitoring Plan**

All of the industrial waste facilities that are considered “Significant IW Dischargers” to the Chesapeake Bay should monitor each process-related outfall (i.e., not storm water or non-contact cooling water) for the Nitrogen Series (TKN, NH<sub>3</sub>-N, and NO<sub>2</sub>+NO<sub>3</sub>-N) and Total Phosphorus on a weekly basis. In addition, since EPA requires net loads for industrial facilities for use in its Chesapeake Bay Tributary Model, source (intake) water concentrations must also be characterized. Quarterly monitoring of source water is recommended for Significant IW Dischargers.

For all other industrial waste facilities (“Nonsignificant IW Dischargers”) and for non-contact cooling water discharges at Significant IW facilities, the table below\* provides the recommended monitoring schedule. Semiannual monitoring of source water is recommended for these discharges.

Facility / Wastewater Type	Design Flow	Effluent N Series & TP Monitoring Frequency
Non-Contact Cooling Water <u>with No</u> Chemical Additives	All Flows	1/year
Non-Contact Cooling Water <u>with</u> Chemical Additives	< 0.1 MGD	1/year
	> 0.1 MGD	1/quarter
Agricultural and Related Products (SIC Codes 0111-0989 and 2011-2141)	< 0.1 MGD	1/month
	0.1 – 1 MGD	2/month
	> 1 MGD	1/week
Textile Mill and Related Products (SIC Codes 2211-2399)	< 0.1 MGD	1/month
	> 0.1 MGD	2/month
Lumber, Paper and Allied Products (SIC Codes 2411-2679)	< 0.1 MGD	1/quarter
	> 0.1 MGD	1/month
Chemicals, Plastics, Pharmaceuticals and Allied Products (SIC Codes 2812-2899)	< 0.1 MGD	1/quarter
	> 0.1 MGD	1/month
Primary and Fabricated Metals Products (SIC Codes 3312-3510)	< 0.1 MGD	1/month
	> 0.1 MGD	2/month
Electric Services (Coal Pile Runoff and Other Wastewaters) (SIC Code 4911)	All Flows	1/month
Water Treatment Facilities (SIC Code 4941)	All Flows	1/quarter
Groundwater Cleanup Operations (Various SIC Codes)	All Flows	1/quarter
Landfill Leachate (SIC Code 4953)	< 0.1 MGD	1/quarter
	0.1 – 1 MGD	1/month
	> 1 MGD	1/week
N or P-Contaminated Storm Water	All Flows	1/quarter
All Other Wastewaters*	< 1 MGD	1/quarter
	> 1 MGD	1/month

\* More frequent monitoring may be required based on professional judgment.

**Data Collection**

Each facility will be asked to register for the DEP’s electronic Discharge Monitoring Report (eDMR) system, so that data can be acquired electronically for analysis. eDMR registration forms will be included with permit amendment documents to facilitate this effort. If facilities do not elect to use eDMR, Central Office will supply them with a “Bay Nutrient Data Spreadsheet” that they will complete and submit electronically on an annual basis, in addition to paper DMRs and Supplemental Reports.

The following language will be used in permit amendment cover letters to address this (for those facilities who are not yet participating in eDMR):

*We are requesting that you use the DEP’s eDMR system for the electronic reporting of monitoring data in lieu of paper DMR submissions (see [www.dep.state.pa.us/edmr](http://www.dep.state.pa.us/edmr) for more information). Please complete the enclosed forms and mail them along with the requested attachments to the address listed on the registration form. Participation in eDMR is voluntary, not mandatory; however, your use of eDMR provides many resource-saving benefits. If you decide not to use eDMR, DEP will send you an electronic form to complete annually for nutrient data. Your cooperation is appreciated.*